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Institutions and Labor Market Outcomes in Sub-Saharan Africa

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Abstract

The authors use firm-level survey data from the manufacturing sector in 20 Sub-Saharan African countries to explore the links between labor market regulations and net job creation. A first look at firm characteristics, perceptions, and the dynamics of employment at the firm level suggests that labor regulations are not the main "binding constraint" on job creation. Other issues seem more important at this level of development. The analysis estimates the determinants of net job creation incorporating the legal origin of the country as a proxy for regulation. The findings show that, after controlling for other firm-level characteristics, legal origin is uncorrelated with net job creation in the short run.

This paper—a product of the Poverty Reduction and Economic Management Department, Africa Region—is part of a larger effort in the department to analyze the relationships between labor market policy, economic growth, and poverty reduction in Sub-Saharan Africa. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at lfox@worldbank.org, and aoviedo@worldbank.org.

Institutions and Labor Market Outcomes in Sub-Saharan Africa*

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I. Introduction

The last two decades have seen the emergence of a rich literature on the economic impact of generous employment protection legislation (EPL hereafter) in certain countries, motivated in part by the widening gap in employment between continental European countries and the United States during the 1990s, and by subsequent regulatory reforms in Europe and Latin America to boost job creation and reduce unemployment. There are very few empirical studies on the impact of EPL in Sub-Saharan Africa (SSA hereafter), despite the importance of job creation for poverty reduction in Africa.

EPL is usually enacted with the goal of preventing unfair or discriminatory treatment and providing protection for workers who either lose their jobs or are temporarily unable to work. Empirical evidence suggests that a side effect of some EPL provisions is to reduce labor demand overall, which translates into a reduction in wage and salary employment, especially for particular groups.

We exploit the firm level data provided by the Enterprise Surveys conducted in SSA between 2003 and 2007 to investigate how labor market outcomes, in particular net job creation, relate to country labor regulations. Ideally, we would like to analyze *gross* job flows, that is, the sum of job creation and job destruction, rather than *net* flows. Unfortunately these data are not available in the surveys, so we use net flows as an indicator, albeit imperfect, of labor adjustment. Therefore, our results should not be interpreted as definitive evidence of a relation – or lack thereof- between employment creation, labor adjustment and regulation, but rather as a first indication of the importance of regulation, relative to other factors that matter to African firms.

We find that employment growth is strongly associated – as in other regions- with firm size, age, and other indicators of productivity, such as investment in human capital, technology use, etc. Employment growth is not associated with measures of labor regulation, and firms' perceptions indicate that regulation is a minor obstacle, when compared to the lack of infrastructure, limited access to credit, and others. In addition, a structural change that occurred in certain SSA countries between 2003 and 2006 seems to have encouraged firm expansion, irrespective of the regulatory environment. Multivariate analysis of firm recall data show that over the last three years, regulation is not associated with employment growth at the firm level. But our analysis also reveals a significant relationship between regulation – as measured by the labor and overall regulation indicators from *Doing Business* - and long-run employment growth at the firm level. Thus, the hypothesis that regulation does not matter or will not matter in the future for SSA employment growth cannot be firmly rejected.

The rest of the paper is organized as follows. Section I summarizes the current literature on the effects of labor regulation on various labor market outcomes in other regions and in SSA, including the methodological problems with isolating this effect. Section III describes the data. Section IV provides a bivariate analysis of firms' characteristics, their perceptions, the regulatory environment and employment expansion. Section V provides a multivariate econometric estimation of the impact of legal origin on job creation. Section VI concludes.

II. Employment protection legislation and labor market outcomes

A large number of cross-country studies document the effects of EPL on labor market outcomes. The bulk of the work has focused on OECD countries, and on the costs of severance pay, mainly in order to shed light on the persistent differences in unemployment between continental Europe and the United States since the 1970s. In general, the argument is that if

firms face high severance costs, they are less inclined to hire workers, especially marginal workers such as unskilled workers, young workers, and women. This may eventually lead to lower overall employment (and in developing countries it can also lower employment in the formal sector, while increasing employment in the informal sector). To cite a few studies, Lazear (1990) finds that in the OECD, stringent EPL is associated with lower employment and labor participation rates. Similarly, the 1994 OECD Jobs Study concluded that reform in job security provision was necessary to expand employment in the private sector. However, there is some disagreement, for instance, Blank (1994) argues that the supposed trade-off between social protection and economic performance is far from obvious. For example, in some cases EPL leads to lower wages, but not lower overall employment. More generally, most analyses of EPL and other regulations look only at particular outcomes, but not at overall welfare.

Studies of the impact of EPL on certain labor market outcomes in less developed economies by-and-large confirm the evidence from advanced economies. For instance, Heckman and Pagés (2000) construct an index of job security legislation in Latin America, and look at how it is related to the level of employment using cross-section data. They find that higher job security is associated with lower levels of employment across Latin American countries.[1] Using Chilean data, Montenegro and Pagés (2003) find that EPL both reduces overall employment levels and changes the composition of the workforce by reducing the share of female and young workers. In a cross-section analysis of countries over 80 countries, Pierre and Scarpetta (2004) compare firms' perceptions about the stringency of labor market regulations with actual legislation.[2] They find that both match closely; in addition they find that firms that are relatively more exposed to EPL also rely more heavily on temporary contracts and on-the-job training.[3]

It has been assumed that in SSA the effect of EPL on employment in the private sector is similar to that in other countries (see, for example, Botero *et al.*, 2004). But Africa specific studies of the effect of EPL on labor market outcomes have not been done – the evidence for SSA comes from cross-country analysis. Available evidence suggest that the effect of EPL on employment in the low income countries of SSA may be of a lesser magnitude than in Latin America or the OECD, at least at this point in their economic development. For instance, in their comprehensive discussion on the reasons for Africa's sluggish job creation performance, Fox and Gaal (2008) point out that, despite the lack of studies of EPL similar to those done for OECD countries, available evidence based on firm perceptions emphasizes skill shortages as one of the main constraints to job creation, as well as overall low investment in labor–intensive manufacturing.[4] Firms report that the generally poor investment climate raises operating costs for businesses, making SSA less competitive when compared to other emerging economies.

Evidence of skill shortages is found in studies of wage determination in Africa, as well as evidence that in SSA wage determination is not competitive. Fox and Oviedo (2008), Alby (2007), and others have found evidence of rent-sharing between firms and unions, as well as with older workers. Despite the potential selection bias (if union members or older workers are more productive), in their production function estimation Fox and Oviedo do not find that

[1] This is particularly true for countries that have civil law systems.

[2] Since the 1990s, the World Bank has collected firm-level data in a large number of countries. The Enterprise Surveys contain detailed questions on the firm's production and sales, but their main objective is to measure how the investment climate of the country affects the firm's operations and decision-making process. These surveys have been extensively used to study a number of issues over the years (see for instance, WDR 2005). However, few of these have looked specifically at labor market institutions.

[3] Unfortunately, the number of African countries in their sample is rather small (around 2-3).

[4] See also Figure 2 below.

these groups of workers are significantly more productive than others, which supports the rent-sharing hypothesis.[5]

Another approach to analyzing the effects of EPL is to study these regulations within the context of the historical background of the country's private sector regulatory system. As La Porta *et al.* (1998) and Botero *et al.* (2004) note, through conquest and colonization European powers imposed on countries around the world legal systems adapted from two very distinct legal traditions coming from Western Europe, namely common and civil law.

Common law, which originated in England "is characterized by the importance of decision-making by juries, independent judges, and the emphasis on judicial discretion as opposed to codes" (Botero *et al.,* 2004). Common law is the legal structure that predominates in Anglophone SSA countries. Civil law originated from Roman law and was adopted by civil codes in France and Germany. It is "characterized by less independent judiciaries, the relative unimportance of juries, and a greater role of both substantive and procedural codes as opposed to judicial discretion" (Botero *et al.,* 2004). Civil law was adopted by Francophone and Lusophone SSA countries.[6]

Because of the inherent differences between both legal structures, it is natural to find differences between regulatory environments, which themselves must fit within their own legal system. Naturally, the literature finds a strong correlation between the stringency of regulations and the legal origin of the country. This is an important empirical fact, because although the introduction of new regulations is likely endogenous to the current economic and political situation of the country, the legal system itself was imposed at the time of colonization, and therefore it can be considered exogenous. The correlation between legal origin and regulation then allows the researcher to use legal origin as an instrument of regulation. Botero *et al.* (2004) take this approach and use data from 85 countries to analyze the determinants of EPL, and the impact of EPL on labor market outcomes. They find that more stringent EPL is associated with the civil law tradition, and that countries with more stringent regulation have lower labor force participation, and higher unemployment, especially youth unemployment.

The main difficulty when comparing the effects of EPL in a cross-country context is that there is a potential endogeneity problem, hence, a positive correlation between EPL and the measured outcome cannot be taken as evidence of a causal relationship. For example, Fox and Gaal (2008) note that although few firms in Africa cite EPL as a main obstacle to business in enterprise surveys, EPL might well be correlated to factors outside the labor market, such as weak infrastructure, and poor governance (which are perceived as severe obstacles). In such a case, cross-country OLS analysis (such as that in Heckman and Pagés, 2000, which uses one fixed effect variable to control for all unobservable country effects) is unable to disentangle the effects coming from EPL from those of other country-specific policies.[7] In addition, EPL may create disincentives for investment in certain sub-sectors or technologies that require high labor

[5] Note that EPL may be amplifying skill shortages, thus reducing investment and job creation. Analysis of the legal restrictions to hiring foreign workers in the countries from our sample reveals that the number of countries with special restrictions (usually requiring replacing foreign with native workers after some time) is high, and greater in the Francophone group. This can exacerbate skill shortages for firms.

[6] With apologies to the Portuguese, for simplicity, hereafter we refer to common law countries as "Anglophone" and to civil law countries as "Francophone."

[7] Freeman (2007), among others complains about this type of analysis, and overall, the limitations of the technique of cross country regression analysis have been widely vetted in the discussion of growth analytics. Note that in their paper, Heckman and Pagés try to correct for this in subsequent estimations but the issues remain.

turnover (i.e., labor market flexibility) to be efficient and competitive, and this cannot be detected by traditional cross-country analysis.[8]

Recent micro-based empirical work that estimates the effects of employment protection legislation (EPL) on labor market outcomes usually takes one of three methodological approaches to deal with endogeneity concerns. The first is to do a "quasi-experimental" analysis that estimates the effects of EPL by comparing labor market outcomes before and after EPL reforms that affected only a selected group of workers in one country.[9] These episodes constitute "natural experiments" that allow researchers to isolate more accurately the effects of EPL from other, unobserved variables, that might be correlated with EPL. For instance, Kugler (1999) finds that reducing firing costs in Colombia in the early 1990s increased labor mobility by facilitating entry into unemployment; at the same time, it encouraged formal employment, thus having an overall negative effect on unemployment in a period of economic expansion, whereas unemployment increased faster during the subsequent recession than it did before the reform. Saavedra and Torero (2000) examine the effects of EPL reforms in Peru during the 1990s, and find that reductions in the severance payments' structure reduced the effect of labor costs on labor demand and led to faster adjustments of the labor demand. In addition, the average job tenure fell. Depending on how quickly workers were able to find jobs, this result could potentially be a negative labor market outcome from the point of view of household welfare.

The second approach consists in comparing outcomes across different regions within a country, exploiting intra-country differences in legislation, or enforcement. For example, in a study of Indian manufacturing, Besley and Burgess (2004) find that in states with a more pro-worker EPL firms have lower average productivity, output, employment, and investment; the share of informal firms is larger, and urban poverty rates are higher. Ahsan and Pagés (2007) extend Besley and Burgess' analysis to distinguish which types of EPL have the largest impact on labor market outcomes. They conclude that regulations pertaining to dispute resolution have a relatively stronger effect than other types of EPL.

In countries with strict formal employment regulations (translated into high costs of hiring and firing workers), hiring workers informally might be a way for formal firms to adjust their employment level cheaply according to the business cycle (similarly for workers, self-employment is always preferable to unemployment in the absence of unemployment benefits). Thus, preventing firms from using this "illegal" adjustment margin might indeed reduce informal employment, but at the expense of firm performance, if formal employment is kept highly protected. Almeida and Carneiro (2006) test this by exploiting differences in enforcement across cities in Brazil, and find that labor inspections significantly reduce employment, output, sales, capital stock, and job creation (measured in new hires).

Another alternative is to look at how gross job flows (i.e., the sum of job creation and job destruction) behave across sectors in countries with different EPLs. The idea is that "natural" differences across sectors (for instance, technological differences) result in different labor adjustment patterns, making some industries more volatile than others in terms of job flows, regardless of the stringency of EPL. Thus, these "natural" differences can be affected in the presence of distortions (for instance EPL). Looking at the differences rather than the levels is a

[8] This could include firms whose final product's demand varies unpredictably (e.g. garments), or who suffer effects of seasonality and need to be able to lay off workers flexibly.

[9] See, for instance, Autor *et al.* (2007), Kugler and Saint-Paul (2004), Kugler and Pica (2008), Kugler *et al.* (2003).

way of controlling for unobservables that can lead to biased estimates when looking at levels. Studies such as Haltiwanger *et al.* (2006), and Micco and Pagés (2007) adapt the original methodology from Rajan and Zingales (1998), by taking the United States as the reference country (i.e. the country with the least stringent EPL), and comparing how differences in job flows across industries vary between the US and other countries. These studies find that in more regulated countries job turnover is lower in sectors where employment is intrinsically more volatile, thus reducing the "natural" turnover differences between sectors.

Ideally, we would like to take one of these approaches in our analysis of SSA. We are not able to do so for the following reasons:

- Most labor market reforms in SSA (such as those praised in recent *Doing Business* reports) have not been captured by DB scores, since most of these scores were computed after reforms took place (most scores are available only from 2007 onwards). Moreover, enterprise survey data is only available for one country-year in most cases. Current surveys are planned to allow for panel data, so that in the future this type of "quasi-experimental" analysis will be feasible.
- Certain labor market outcomes studied in OECD and Latin American countries are not easily measured in SSA using standard definitions (e.g. unemployment). Instead, labor markets in SSA display much larger levels of informality (either at the firm, or at the worker level). In order to measure the different "stages of employment" at the firm and worker level, carefully conducted labor force survey data are required. These data are only now becoming available.
- Countries generally do not have province-level labor laws, as they do in India. Nor do we have data on the extent of enforcement. In addition, in most small, low-income SSA countries, the overwhelming majority of private formal sector jobs are concentrated in one or two main cities.
- In our firm-level data, we only observe *net job creation* (employment growth), which is a very imperfect indicator of labor dynamics. A firm can very well exhibit no net job creation and have large gross flows, yet, concluding that the firm is not adjusting because net job creation is low would be incorrect.

What follows is a compilation of the evidence we can gather on the effects of EPL from the firm level data currently available for SSA. Following the argument of La Porta *et al.* (1998) and Botero *et al.* (2004) that the legal origin of the country is associated with the quality of its institutions, including the amount of regulation, we divide our sample into two groups, one with countries with a common law legal system (all of them British ex-colonies), and the other with countries with a civil law system (all ex-French colonies, except Cape Verde, which is a former Portuguese colony).

Our main variable measuring labor regulation comes from the *Doing Business* indicators. (DB hereafter). A valid criticism of these indicators is that the most commonly used measures of labor regulation generally consider all regulations to be detrimental to economic performance. Hence, these measures deliberately ignore the potential costs (for instance the negative externalities) of having fully de-regulated markets. In the case of EPL, they also ignore the power difference between employees and employers which in the past, when EPL did not exist, produced highly negative economic and social consequences (e.g. Europe in the 19th century). In its critical assessment of the DB indicators, the World Bank's Independent Evaluation Group

(World Bank, 2008(b)) concluded that "DB measures the costs but not the benefits of regulation." In particular, the report notes that seven out of DB's ten indicators systematically reward de-regulation, regardless of the country's initial regulatory environment, and reform is understood as reducing regulations, rather than increasing their potential benefits.

In our study, we cannot address these limitations; we use the DB indicators as we have no other comprehensive data sources. We use employment in manufacturing firms as our outcome variable. We cannot address the question of overall welfare of all employees and who are the winners and losers from this regulation in SSA.

III. Data

We use surveys of manufacturing firms carried out by the world-wide Enterprise Survey project of the World Bank group between 2003 and 2007.[10] The firms surveyed are for the most part registered for tax purposes; they employ at least 5 employees.[11] The manager/owner of the firm is interviewed in detail about basic firm characteristics (age, legal status, etc.), as well as specific investment climate questions, for instance whether the firm has experienced power outages, what the delays have been when it requested a public service, how difficult it is to deal with public officers, etc. In addition, the manager is asked to rank the investment climate obstacles according to his/her opinion (infrastructure, access to finance, labor regulations, crime, corruption, etc., a total of 15 investment climate aspects). In short, the surveys contain a rich set of questions that can be used to relate firm performance to the investment climate of the country.

Within manufacturing, our sample has firms in the following sectors: food & beverages; chemicals, paints & pharmaceuticals; construction materials; metals; paper & printing; plastics; textiles, garments & leather; wood; and other manufacturing.

Our sample covers 12 civil law countries: Benin, Burkina Faso, Burundi, Cameroon, Cape Verde, Democratic Rep. Congo, Guinea, Madagascar, Mali, Mauritania, Rwanda, and Senegal), and 8 common law countries: Botswana, Gambia, Ghana, Kenya, Namibia, Swaziland, Tanzania, and Uganda.

In the next section we explore the links between the stringency of regulations, in particular labor regulations, the perceptions of firms regarding regulations, and labor dynamics in manufacturing in SSA.

IV. Institutions and manufacturing performance in Africa

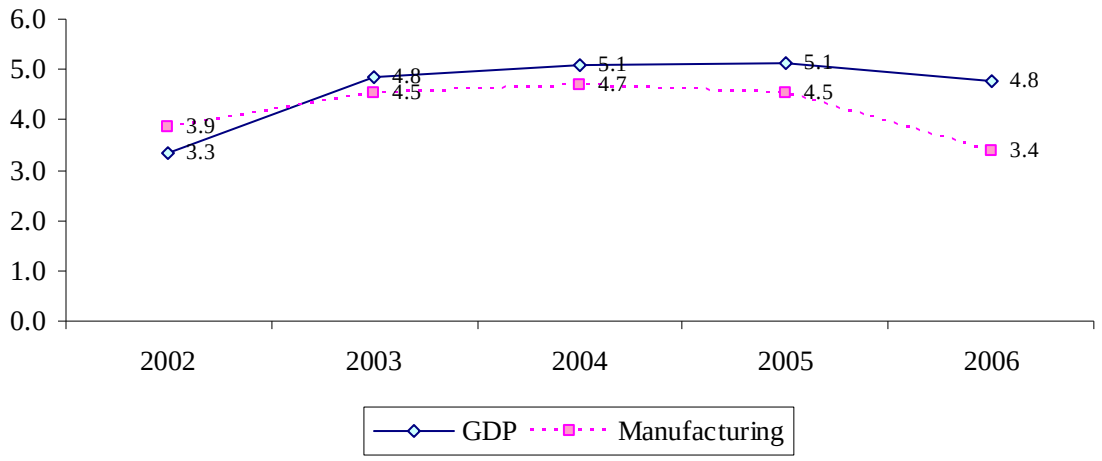
Most of the countries surveyed were experiencing a period of broad-based growth at the time of the survey, in many cases following a period of slower growth in the 1990s. An exception is Kenya, which in 2003 was just beginning to emerge from a period of very slow growth, caused in part by political uncertainty and stalemate. Manufacturing was growing as well, although it still accounts for less than 10 percent of overall value added in Sub-Saharan Africa.[12] Table 1 shows

[10] Comprehensive information about these surveys is available at www.enterprisesurveys.org.
[11] In some countries, separate surveys have been implemented for micro- and informal firms, but we are not using these data at present.
[12] We exclude South Africa from our analysis.

that the share of manufacturing in GDP between 2002 and 2006 in 17 countries does not exceed 14 percent (an exception is Swaziland, where it reaches 37 percent). At a first glance, the growth rate of manufacturing appears to have been higher than GDP growth in most countries over the period 2002-2006 (see Table 2); however, the average growth of manufacturing for the entire region is somewhat lower than GDP growth (weighting countries by their corresponding GDP). Figure 1 depicts the aggregate growth of GDP and manufacturing, showing that they have been similar over the period.

Figure 1

GDP and Manufacturing Growth (%)



Note: GDP and manufacturing value added growth rates are aggregated using a weighted average, where each country is weighted by its total GDP in constant 2000 US Dollars.
Source: Authors' calculations using WDI (2007) data.

In terms of employment, manufacturing is also a very small sector, accounting for less than 10 percent of total employment on average.[13] For example, between 1998 and 2003 total wage and salary employment grew at 6 percent per year in Burkina Faso, however, its share in total employment went from 2.9 percent to 3.7 percent only.[14]

INSERT TABLES 1-3

The good news for SSA is that growth in the manufacturing sector is bringing jobs. Despite having different economic conditions, in all countries (except Kenya) that were surveyed since 2003, more that 50 percent of firms survey reported a larger number of employees than they had three years ago, and most reported double-digit growth in employment (Table 3). Data from two countries suggest that this employment growth is a very recent trend - both Ugandan and Tanzanian firms show most of their expansion since 2003, and Senegal, also surveyed in 2003,

[13] For example, the share of industry employment in total employment is about 7 percent in Madagascar and Uganda (World Bank, 2007).
[14] See Fox and Gaal (2008).

shows a lower percent of firms growing.[15] This may represent some type of structural shift, possibly related to regulation. According to the *Doing Business* report of 2006, Africa was a top reformer, owing to the number of regulatory reforms introduced. As is common throughout the world, small and young firms are growing much faster than large firms, but even large firms are expanding at over 10 percent on average (Table 4).[16] There seems to be no difference in employment growth between exporters and non-exporters, and firms in Francophone countries are growing slightly faster than in Anglophone.

INSERT TABLES 4-5

Where does SSA stand in terms of regulation? According to the *Doing Business* (DB) indicators, not very well (even after introducing major reforms earlier in the decade). An overview of the DB scores is presented in Table 5 for Anglophone and Francophone countries. This reveals that overall regulation and labor regulation is more stringent in Francophone countries, although both groups have quite poor scores (high scores) when compared to the rest of the world.[17] In virtually all categories (entry, licensing, registration, labor, contracts, trade, taxation, access to finance, investor protection, bankruptcy), the Anglophone group's rank stands ahead of the Francophone group's. For instance, in the labor regulation category, the Anglophone group has better scores in hiring, rigidity of hours, and has lower non-wage labor costs. Furthermore, even though the actual firing costs (in terms of weeks of wages) are higher in Anglophone countries the overall firing index is lower (that is, firing is less difficult legally).[18]

INSERT TABLES 5-6

At a first glance, the stringent EPL and overall high level of business regulations in SSA countries do not seem to be stifling employment growth. Table 6 shows the average employment growth by country together with two DB indicators: labor market regulation and the overall regulation ranking. Countries are sorted according to the overall ranking, from best to worst. As we can easily note, there seems to be no pattern between employment growth and the regulation ranking of the country.

Firms agree that EPL is not an important obstacle to growth. The surveys measure firms' perceptions of the business environment (Figure 2). Although there is a potential endogeneity problem (i.e., these firms are the survivors of the regulatory environment), what firms report hinders them the most is not the regulatory environment, but limitations in infrastructure, access and cost of finance, and government behavior (corruption).[19] Labor regulations rank lowest relative to all other constraints according to firms.[20] Even more important, the ranking of

[15] There may also have been a difference in the sampling strategies in the two years. Although the sampling strategies are supposed to be the same, in Uganda, we find important differences in the distribution of firms by sector in the two samples.

[16] Aterido and Hallward-Driemeier (2008) analyze employment growth in a large cross section of countries around the world.

[17] The DB score shows the ordinal ranking of the country relative to all other countries where DB data are collected and analyzed. As they are ordinal scores, a country could undertake a major reform, yet not see much change it its DB score because other countries with similar scores are also reforming. This may be happening in Africa.

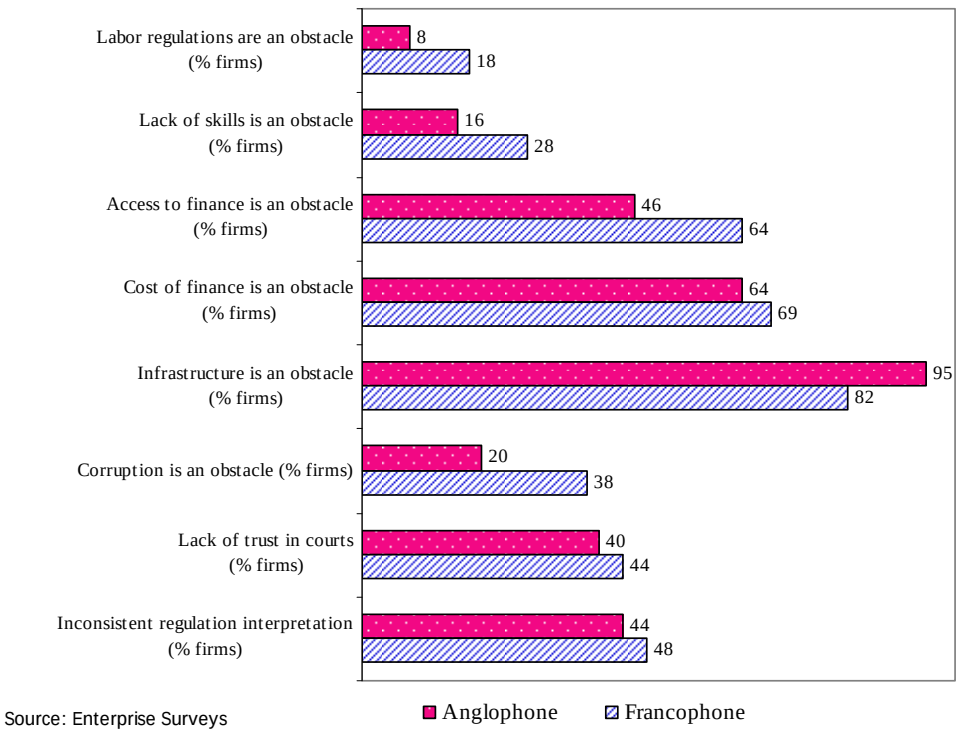
[18] For methodological details, see www.doingbusiness.org.

[19] Note that some dimensions of *Doing Business*, such as poor contract enforcement, show up to the entrepreneur as an increased risk, and hence the lender may raise the cost of finance.

[20] This is also found in South Africa by Habyarimana (2008).

obstacles tends to be the same across both Francophone and Anglophone countries, although there are a few differences in the perception of the severity.[21]

Figure 2



Another indicator of the limited impact of the differing institutional environments is that there are few differences in the *characteristics* of manufacturing firms between Francophone and Anglophone countries. Tables 7 and 8 show industry composition, and other basic firm characteristics in our sample. The industry composition is very similar between the two groups, with over a quarter of firms belonging to the food processing sector, and the rest roughly divided across the textile & garments, furniture, and basic metals industries. Perhaps, not surprisingly, these industries correspond to medium-low and low-technology sectors in the "OECD-sense." About one-quarter of firms in both groups export (at least) some of their output.

[21] The endogeneity problem creates a double sample selection bias. The first is related to the firms that are not observed because they do not exist, (either because they never entered the market (entry barriers too high) or because they already exited (operating costs too high). The second is related to the existence of a large informal sector, which although observable, is not captured in these surveys. Firms typically choose to be informal either because formalization is too complex, or because their low scale and productivity makes them competitive only if they can avoid taxation. In any event, recent research shows that formalization in Africa is strongly related to access to finance, taxation, and access to infrastructure (see Ingram *et al.*, 2007)

INSERT TABLES 7 & 8

Despite the similar industry composition across groups, we do find a few differences in other firm characteristics: 24 percent of firms in the Francophone area are partly (or entirely) foreign owned, which is the case only for 13 percent in the Anglophone area. Thus, despite an apparently weaker investment climate, Francophone countries attract more foreign investment. In addition, 33 percent of firms in Anglophone countries provide training to their workers, which is slightly higher than in Francophone countries (29 percent). This potentially contradicts Pierre and Scarpetta's finding that firms in more regulated environments tend to provide more training, since layoffs are more costly. Another interesting finding in our sample is the percentage of workers that firms "usually" report to the authorities: on average in Francophone countries firms report 67 percent of their workforce, whereas in Anglophone countries firms report only 49 percent. This indicates that *informal behavior is more prevalent in Anglophone countries,* which again contradicts the idea that firms are reacting to more stringent regulations.[22]

INSERT TABLES 9 & 10

Rates of unionization are not unusually high, especially in the Francophone group, which also seems at odds with the picture of labor market rigidity from *Doing Business*, above. In general we find that rates of unionization are not unusually high, especially in the Francophone group, which also seems at odds with the picture of labor market rigidity from *Doing Business*, above. However, several studies of the African labor market point out that unions have by-and-large lost ground since the 1980s.[23] Overall, less than half of firms in Anglophone countries have any union presence at all, while only a quarter of Francophone firms have union presence. Table 12 shows that older firms have a more unionized labor force.[24]

Among all the evidence on the irrelevance of EPL in Africa for employment growth, the survey data provide one piece of evidence that employment could be even higher without such strict EPL. In Table 7 we analyze firms' responses to the following question "in the absence of restrictions to hiring and firing workers, how many workers would you currently employ? (Answer expressed as a percentage of current employment)" The first column takes the average of the absolute value of the deviation between potential employment and actual employment in firm *i*:

$$\bar{D} = \frac{1}{N}\sum_{i=1}^{N}\left|potential_i - actual_i\right|$$

This number reflects labor demand at the firm, and deviations between actual and potential employment could in principle stem from frictions in the labor market caused by regulation. However, it is possible that this measure reflect changes in employment under "static" conditions, that is, firms only consider a scenario without restrictions to hiring and firing, without taking into account potential changes in wages that would occur if many firms decided

[22] We have no measure of effectiveness of compliance measures. It maybe Anglophone firms use informality more because the chances of getting caught are higher compared with the chances for Francophone firms, even though the cost of the regulation on the firm maybe higher in Francophone.

[23] See Mazumdar and Mazaheri (2002), Fox and Gaal (2008). However, this does not imply that union members receive equal treatment as compared to non-members. See also Freeman (2007).

[24] Fox and Oviedo (2008) also find that unionization increases with worker age and tenure, which may be one of the reasons for the high severance pay costs in Anglophone countries.

to increase their labor demand (or to lay off many workers) simultaneously, as well as an complementary capital needed (working or for investment) to keep all these workers busy.

In any event, this measure suggests that the observed dynamics of employment in these firms hide a potentially even more dynamic sector. Table 11 shows that there is a large variance in $\overline{D}$ across countries, as it ranges from 0.1 percent of employment in Rwanda to over 100 percent in Kenya. More Francophone firms report they would have a larger workforce than Anglophone, and the average $\overline{D}$ of 13.4 is also higher than the Anglophone average, equal to 10.3. Yet the Anglophone firms average *desired increase* in employment is much higher than the average Francophone one. For those firms who, on the other hand, would like to reduce their workforce, the numbers are much smaller: on average these firms in Anglophone countries would reduce their employment by 3.2 percent, and in Francophone countries they would reduce employment by 6.1 percent.

INSERT TABLE2 11-12

Comparing firms' responses between the 2003 and 2006 waves for Tanzania and Uganda, it seems that between these two years there has been a dramatic change in obstacles to labor adjustment. Indeed, in 2003 firms reported large deviations between potential and current employment, but this difference almost disappears by 2006; simultaneously, we observe a dramatic increase in employment growth, as shown in Table 3.

Quantifying the association observed across countries in our survey data between regulation, and EPL in particular, and employment growth in SSA firms, Table 12 shows correlation coefficients between the DB overall and labor rankings and different measures of actual and potential employment growth.[25] Note that a countries' DB labor and overall DB score is not well correlated, indicating that the correlation that Botero *et al.* (2004) observe between sub-catgories of the regulatory regime does not apply as strongly for EPL in Africa than in other areas.[26] But as weak as this association is, it is the only significant one in the table. All the rest are not very high, nor statistically significant. As noted before, net job creation is not a good indicator of total labor adjustment, which could be well correlated with regulation even if net job creation is not. However, we also find little correlation between potential labor adjustment $\overline{D}$ and regulation, measured either with the DB indicator, or with firms' perceptions.

In summary, a preliminary inspection of the relationship between employment creation and labor regulation at the firm level reveals several intriguing facts: (1) employment growth is high across our entire sample in spite of a very "hostile" regulatory environment, as measured by the DB scores; (2) employment growth is no different between the "better" and the "worst" regulated countries (measured by DB); (3) there is little difference between countries industrial structure which could be related to labor regulation; (4) labor regulation does not appear to be a concern to firm managers; (5) in the absence of restrictions, firms would expand, rather than contract their workforce; and (6) there seems to be a structural change (at least in two countries) between 2003 and 2006 that allowed firms to expand employment.

[25] We are grateful to John Haltiwanger for suggesting that we use correlation matrices to summarize these trends.

[26] Another reason for the low correlation is that the EPL DB indicator is quite narrow, relative the range of EPL instruments. It does not, for example, cover the costs of dispute resolution, which Ahsan and Pagés (2007) have shown is one of the most important aspects of DPL for firms. See Fox and Gaal, (2008) for a critique of this indicator as it applies to Africa.

Would a multi-variate approach be more effective at isolating the effects of EPL on employment growth? Possibly, if the methodological issues of causality could be overcome. As noted above, we do not have the data required for this in our sample. However, we do have two outcome variables observed at the firm level – employment growth over the last 3 years, and employment growth since the firm began as well as a large number of other firm-specific variables. In the following section we use these variables to explore more thoroughly whether there is an association, using a multivariate approach.

V. Econometric analysis

Following La Porta *et al.* (1998) and Botero *et al.* (2004) we examine the link between regulation and employment growth using a reduced form. We try two specifications. First we take legal origin as a proxy for regulation. However, because of the somewhat weak correlation between the extent of overall regulation and EPL in SSA, we estimate a second specification, which incorporates overall regulation and EPL separately.

We estimate the following equation:

$$EG_i = \alpha_0 + \alpha_1 SIZE_i + \alpha_2 AGE_i + \alpha_3 LEGAL + \alpha_4 OTHER_i + \varepsilon_i \quad (1)$$

where *SIZE* is the initial size of the firm, divided into 6 employment categories (5 or less, 6 to 10, 11 to 20, 21 to 50, 51 to 100, and over 100); *AGE* is one of 5 age categories (less than 5, 5 to 9, 10 to 19, 20 to 39, and 40 and older); *LEGAL* is the institutional variable, either (a) a dummy that equals one if the country has a civil law system, and zero otherwise or (b) is the country's DB scores; and *OTHER* represent other firm characteristics, namely exporter status, access to credit, technology use, capital stock, ownership status, and human capital. In addition to we include country and industry effects in all regressions, to minimize the potential for omitted variable bias. We also compute heteroskedasticity-robust standard errors. Finally, following Fox and Oviedo (2008) we estimate (1) by weighted least squares, where each country is weighted by its GDP measured in constant 2000 US Dollars.

The dependent variable *EG* is measured as either annual average employment growth over the last three years, but alternatively we also use long-term growth, measured as the average annual growth rate from start-up to current size. In both cases, we have a truncation problem. Because this variable is based on recollection, we do not have in the regression firms which died in the last three years. Obviously, the longer the recall period used to measure employment growth, the worse the truncation problem. Thus for the long-run employment growth variable, the truncation problem may be severe. For example, if employment is more volatile in Anglophone countries than Francophone (there is more rapid expansion but also many more deaths), we would see observe a higher expansion in Anglophone countries even though long run employment growth is actually higher in Francophone because there are fewer deaths. Thus these estimates should be regarded with care.

Table 13 presents the results from four specifications, using legal origin as the institutional variable. The first two columns use annual employment growth as the dependent variable, and the last two columns use long term growth. In the first specification we only include firm size, age, and the legal origin dummy, whereas in the second specification we also include the other firm characteristics, in order to reduce potential multi-collinearity between legal origin and firm attributes. As Table 6 already indicated, our results confirm that smaller and younger firms grow faster, since all our size and age coefficients are negative and significant (the excluded categories are the smallest and youngest firms). However, there do not seem to be major differences in

growth rates across the different age and size classes, except between the excluded ones and the rest.[27] The legal system coefficient is not significant, and remains so when we include the other firm characteristics. Annual employment growth seems to be closely associated to ownership status, capital (measured by owning a power generator), and to a lesser extent, to exporter status and technology use (measured by the use of e-mail). The first result –sole proprietor's firms grow faster- is likely associated with the fact that single-owner firms are also smaller, and younger. The other two results on the other hand, reflect the fact that more productive firms also grow faster, and they are more likely to be exporters and to use technology more intensively.

INSERT TABLE 13

When we use long-term growth as the dependent variable, results are quite different, and reveal further elements of employment dynamics in manufacturing. First, note that the differences in growth across size and age classes are much more marked for long term growth. Micro firms still grow faster, but there are also large differences in growth between small, medium, and large firms. For age, results are the opposite with older firms growing more, which is obvious given that older firms are likely to be more productive and hence to exhibit more sustained growth over long periods.

In addition, the legal origin dummy has now a negative and significant coefficient, which may suggest that in civil law countries firms may tend to grow more slowly over long periods. However, its magnitude falls by half once we include other firm characteristics in the regression. In particular, we find that exporters, firms with more capital, firms that use technology more intensively, and firms that invest in human capital (measured by training provision), are likely to grow more over long periods. This is also true, albeit with a smaller effect, for firms with access to credit. Interestingly, the coefficient of ownership is now negative, suggesting that single-owner firms might have higher short term growth, but in the long term those that survive, and grow more are multiple-owner firms.

Altogether, the explanatory power of our specifications is quite low, ranging from 0.06 to 0.14, which indicates that there are many unobserved factors that influence employment growth, and that are not captured by our variables. In any case, the results from these simple regressions suggest that the regulatory environment is not a good predictor of the job creation performance of the manufacturing sector in the short run, although we do find that in the long run more regulated countries (in our case countries with a civil law tradition) tend to have firms that grow less over their lifetime.

Our next exercise consists of estimating a similar equation to (1) but instead of using a single country dummy to capture all country-level variables that could affect net job creation, we use a set of country-level controls that include GDP growth (over the last year if the dependent variable is short term employment growth, and growth trend over 1996-2005 if the dependent variable is long run growth); and two DB measures, the overall regulation rank, and the labor regulation rank. Each rank is converted into a number that is between 0 and 1 (where 1 is the most regulated), as follows:

$$DBscore = \frac{(rank - \min)}{(\max - \min)}$$

[27] Very old firms also grow at a rate significantly smaller than that of young firms.

We include the firm level controls used in the second specification of Table 13, as we know that they are significantly related to employment growth. We estimate three alternative specifications. The first only uses the overall DB score, the second only uses the labor DB score, and the last one uses both. We do not include the legal origin dummy in this exercise. As before, we estimate this equation using short term employment growth, and average growth over the firm's lifetime.

INSERT TABLE 14

Table 14 shows the results of the estimations. Our results in general are not very different from those in Table 13, except for a few points. Our DB scores are not significant for short term employment growth when these scores stand alone (in columns 1 and 2 of Table 14). When we combine both DB scores we actually find that more overall regulation is (weakly) associated with less employment growth, while the opposite is true for labor regulation, which is puzzling.

For long-run employment growth results seem stronger, and consistent with our findings presented in Table 13. We find that both overall DB and labor scores have negative and significant coefficients, however only the overall score remains significant when we include both in the regression. The coefficient of GDP growth trend over the period 1996-2005 is negative, which is confusing. It may suggest that in some countries GDP growth was driven by technological progress or increases in capital intensity (e.g. the growth of mining activities), which are not necessarily beneficial for job creation.

In our econometric analysis we do not attempt to establish a causal relationship between regulation and employment growth. One explanation is that countries with more stringent regulation, and more generally countries with a civil law tradition, tend to have firms that grow less over their lifetime, even after controlling for firm characteristics and industry composition. But an alternative explanation could be that in civil law countries employment is less volatile (but not necessary lower). However, if this were the case, we would also expect firms in more regulated countries to grow more slowly in the short term, as they would have more difficulties to adjust their labor force, but we do not find this to be the case.

One possible explanation for this is that DB indicators, as well as the legal origin, do not accurately capture some elements of regulation that are important for firms in the short run. As noted earlier, this is one of the main criticisms raised by the evaluation of DB indicators by the World Bank's Independent Evaluation Group (World Bank, 2008(b)).[28] For example, Ahsan and Pagés (2007) find that in India (which has a common law system), specific laws pertaining to conflict resolution have a much larger impact on labor market outcomes than laws typically measured in the DB scores (severance pay, etc.). These laws would be left out of a DB-type index, and in a cross-country set up, legal origin alone would not be able to capture the heterogeneity of labor regulations. Finally, it is well established that regulation, governance, and the legal origin of a country are closely correlated, especially product market regulations (and to a lesser extent, labor and fiscal regulations).[29] Therefore, the significant relationship between the

[28] The report notes that "DB is not intended to, and cannot, capture country nuances. Firms' investment decisions also depend on variables not measured by the DB indicators, such as the cost and access to finance and infrastructure, labor skills, and corruption. Different aspects of regulation have varying degrees of economic importance depending on countries' income levels, legal regimes, and other characteristics." See World Bank (2008(b)).

[29] See for instance, Loayza *et al.* (2005).

DB indicator or the legal origin, and employment growth could in fact be capturing other institutional aspects of importance for employment growth that are not easily measured (such as enforcement).

VI. Concluding remarks

The recent evidence for many developed and emerging economies of the potentially harmful impact of labor and other regulations on economic outcomes (growth, employment, etc.) has triggered calls for regulation reform across the world. In Sub-Saharan Africa (SSA), however, little is known about the actual impact of regulations, and given the severity of the many constraints to economic development in SSA, it is reasonable to think that labor and other regulations might not be among the top "binding constraints" to development.

This paper seeks to analyze the effect of regulations –labor regulations, but more broadly, the legal system- on job creation. Our preliminary examination of firm-level data on employment growth and firm perceptions about the investment climate, contrasted with widely used *Doing Business* (DB) regulation indicators, suggests that (1) employment growth in manufacturing is high across SSA in spite of a very "hostile" regulatory environment; (2) employment growth is no different between the "better" and the "worse" regulated countries; (3) labor regulation does not appear to be a concern to firm managers; (4) in the absence of restrictions, firms would expand, rather than contract their workforce; and (5) there seems to have been a structural change between 2003 and 2006 that allowed firms to expand employment.

We also find an ambiguous statistical relation between job creation (measured as short- and long-term employment growth), the DB regulation scores, and the origin of the country's legal system (a proxy for regulation). In the short term, employment growth is neither related to any measure of regulation, nor to legal origin. Instead, it seems to be more driven by firm characteristics that determine productivity: having access to credit, investing in human capital, using technology, etc. In the long run, however, regulation and the legal origin seem to play a role, as they are significantly associated to employment growth over a firm's lifetime, in addition to the firm characteristics mentioned above. Regarding the right policies to enhance job creation in SSA, our results seem to confirm that regulation reform alone might not lead to the high payoffs observed in other regions, and that improving the overall investment climate should instead be the focus.

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TABLES

Table 1: Manufacturing, value added (% of GDP)

		Year				
		2002	2003	2004	2005	2006
Anglophone	Botswana	4.2	4.3	4.1	3.7	3.7
	Gambia	5.7	5.3	5.3	5.2	
	Ghana	9.0	9.0	8.8	8.3	7.6
	Kenya	11.3	11.2	11.2	11.5	12.1
	Namibia	11.1	12.4	13.5	13.1	12.9
	Swaziland	37.9	38.4	37.9	37.2	36.8
	Tanzania	7.3	7.2	7.0	6.8	6.9
	Uganda	10.0	9.3	9.2	9.2	8.6
Francophone	Benin	8.6	8.5	7.6	7.5	
	Burkina Faso	12.3	12.9			
	Burundi	8.4	8.5	8.5	8.8	
	Cameroon	20.6	20.2	19.2	18.7	18.5
	Cape Verde	6.1	8.0			4.8
	Congo, DR	5.4	5.4	6.3	6.6	6.5
	Guinea	4.1	3.9	3.7	3.7	3.7
	Madagascar	12.5	13.7	14.2	14.0	13.4
	Mali	3.2	2.8	3.4	3.2	3.1
	Mauritania	6.2	6.0	5.9	5.0	
	Rwanda	11.2	8.9	8.0	8.2	8.5
	Senegal	12.5	11.7	11.5	10.9	10.2

Source: Africa Development Indicators (2007)

Table 2: Manufacturing, value added and GDP growth (% per year)

			Year				
			2002	2003	2004	2005	2006
Anglophone	Botswana	Manufacturing	1.6	1.9	4.2	2	1.2
		GDP	5.6	6.2	6.2	4	2.1
	Gambia	Manufacturing	4.5	4.7	4.7		
		GDP	-3.2	7	5.1	5	4.5
	Ghana	Manufacturing					
		GDP	4.5	5.2	5.6	5.9	6.2
	Kenya	Manufacturing	0.1	6	4.5	4.7	6.9
		GDP	0.5	2.9	5.1	5.7	6.1
	Namibia	Manufacturing	9.6	5.2	3	2.1	-8.6
		GDP	6.7	3.5	6.6	4.7	2.9
	Swaziland	Manufacturing	2.1	2	1.8	1.7	2.4
		GDP	2.9	2.9	2.1	2.3	2.1
	Tanzania	Manufacturing	8	8.6	8.6	9	7.1
		GDP	7.2	5.7	6.7	6.8	5.9
	Uganda	Manufacturing	5.3	4	4	11.9	1
		GDP	6.4	4.7	5.4	6.7	5.4
Francophone	Benin	Manufacturing	5.5	0.4	-2.1	4.5	
		GDP	4.5	3.9	3.1	2.9	4.1
	Burkina Faso	Manufacturing	22.1	4.5	10.5	5.8	2.9
		GDP	4.7	8	4.6	7.1	6.4
	Burundi	Manufacturing					
		GDP	4.4	-1.2	4.8	0.9	5.1
	Cameroon	Manufacturing	5.5	3.6	4	4	4.7
		GDP	4	4	3.7	2	3.8
	Cape Verde	Manufacturing	10.7	7.6	12.2		
		GDP	4.6	6.2	-0.7	11.9	6.1
	DR Congo	Manufacturing	6.8	10.1	8.9	9.3	8
		GDP	3.5	5.8	6.6	6.5	5.1
	Guinea	Manufacturing	6	-4	3	1.5	5.2
		GDP	4.2	1.2	2.7	3.3	2.8
	Madagascar	Manufacturing	-20.7	14.5	6.5	2.5	2.7
		GDP	-12.7	9.8	5.3	4.6	4.9
	Mali	Manufacturing	22.7	-5.5	20.9	1.1	0.9
		GDP	4.2	7.4	2.2	6.1	5.3
	Mauritania	Manufacturing	-4.5	-1	10.4	-11.7	11.7
		GDP	1.1	5.6	5.2	5.4	11.7
	Rwanda	Manufacturing	5	-5	-4	11	13.5
		GDP	9.4	0.9	4	6	5.3
	Senegal	Manufacturing	3.4	4	2.6	-1.7	-6.5
		GDP	0.7	6.7	5.9	5.6	2.3

Source: WDI (2007)

Table 3: Employment growth

		Average employment growth rate at firm (percent)	Firms with positive employment growth (percent)
Anglophone	Botswana (2006)	20.3	61.6
	Gambia (2006)	27.4	76.5
	Ghana2007	17.5	60.1
	Kenya (2003)	2.9	40.0
	Namibia (2006)	31.7	72.9
	Swaziland (2006)	9.9	64.2
	Tanzania (2003)	2.2	25.6
	Tanzania (2006)	14.0	69.1
	Uganda (2003)	2.3	22.9
	Uganda (2006)	21.0	70.6
	Total	16.2	60.8
Francophone	Benin (2004)	17.4	48.3
	Burkina Faso (2006)	12.7	58.7
	Burundi (2006)	17.1	69.2
	Cameroon (2006)	5.0	51.7
	Cape Verde (2006)	14.1	42.6
	DR Congo (2006)	12.5	56.2
	Guinea (2006)	23.8	76.5
	Madagascar (2005)	24.4	60.9
	Mali (2003)	22.0	52.9
	Mauritania (2006)	18.7	66.9
	Rwanda (2006)	25.3	83.0
	Senegal (2003)	17.0	45.9
	Total	18.4	59.3
	Overall average	16.6	

Source: Enterprise Surveys

Table 4: Employment growth (percent)

By group	
Anglophone	16.2
Francophone	18.4
Total	16.6
By firm initial size	
Micro [1-5]	28.8
Small [6-10]	11.4
Small-medium [11-20]	11
Medium [21-50]	12.3
Medium-large [51-100]	-0.2
Large [100+]	10.8
By exporter status	
Non-exporter	16.6
Exporter	16.3
By firm age	
Less than 5 years old	35.2
5 to 9 years old	25.0
10 to 19 years old	17.8
20 to 39 years old	4.4
40 years old and older	-0.2

Source: Enterprise Surveys

Table 5: Doing Business Indicators			
	Anglophone	Francophone	Total
General rank	**103.7**	**158.8**	**129.4**
Entry regulation rank	**116.2**	**128.5**	**122.5**
Procedures (number)	13.4	11.3	12.3
Time (days)	59.1	55.5	57.3
Cost (% of income per capita)	86.7	174.8	131.9
Min. capital (% of income per capita)	6.0	212.6	112.0
Licensing regulation rank	**111.4**	**140.0**	**126.1**
Procedures (number)	17.8	18.8	18.3
Time (days)	197.2	302.5	251.2
Cost (% of income per capita)	1416.9	1818.1	1622.7
Labor regulation rank	**83.4**	**131.3**	**102.7**
Difficulty of Hiring Index	25.9	44.4	35.4
Rigidity of Hours Index	31.9	53.7	43.1
Difficulty of Firing Index	33.8	44.7	39.4
Nonwage labor cost (% of salary)	9.9	17.9	14.0
Firing costs (weeks of wages)	70.1	33.1	51.1
Land registration rank	**123.5**	**134.0**	**128.9**
Procedures (number)	8.0	5.9	6.9
Time (days)	145.4	117.5	131.0
Cost (% of property value)	5.4	13.1	9.4
Access to credit rank	**109.7**	**139.4**	**125.0**
Legal Rights Index	4.4	2.8	3.6
Credit Information Index	1.1	1.0	1.0
Public registry coverage (% adults)	0.0	0.9	0.4
Private bureau coverage (% adults)	8.2	0.0	4.0
Investor Protection rank	**87.2**	**122.1**	**105.1**
Disclosure Index	4.2	4.8	4.5
Director Liability Index	3.9	2.8	3.4
Shareholder Suits Index	5.4	4.1	4.7
Investor Protection Index	4.5	3.9	4.2
Taxation regulation rank	**71.0**	**133.2**	**102.9**
Payments (number)	36.4	40.7	38.6
Time (hours)	225.7	402.8	320.6
Profit tax (%)	19.2	17.4	18.3
Labor tax and contributions (%)	11.1	18.9	15.1
Other taxes (%)	10.1	59.6	35.5
Total tax rate (% profit)	40.7	96.2	69.2
Trade regulation rank	**114.8**	**133.2**	**124.3**
Documents for export (number)	8.1	8.0	8.1
Time for export (days)	30.2	40.7	35.6
Cost to export (US$ per container)	1140.2	1637.7	1395.4
Documents for import (number)	12.0	10.2	11.1
Time for import (days)	47.9	49.7	48.8
Cost to import (US$ per container)	1674.0	2033.8	1858.6
Contract enforcement rank	**74.2**	**141.8**	**108.9**
Procedures (number)	36.4	41.6	39.1
Time (days)	564.7	641.4	604.0
Cost (% of debt)	28.1	61.1	45.0
Bankruptcy regulation rank	**73.5**	**140.3**	**107.8**
Time (years)	2.3	4.5	3.1
Cost (% of estate)	22.2	15.5	19.5
Recovery rate (cents on the $)	32.7	6.4	19.2
Note: there is a total of 178 countries in the sample. Higher ranks indicate worse business conditions. Average of all years available, 2003-2007 (less in most cases).			
Source: Doing Business 2008			

Table 6: Employment growth and regulation

	DB overall	DB labor	Employment growth
Namibia (2006)	39.5	33.5	31.7
Botswana (2006)	50	70	20.3
Kenya (2003)	77	66	2.9
Swaziland (2006)	93	51	9.9
Ghana (2007)	109	131	17.5
Uganda (2003)*	117	10.5	2.3
Uganda (2006)*	117	10.5	21
Gambia (2006)*	129	28.5	27.4
Tanzania (2003)*	129.5	150.5	2.2
Tanzania (2006)*	129.5	150.5	14
Cape Verde (2006)	130	144	14.1
Benin (2004)	149	116.5	17.4
Rwanda (2006)	150	95	25.3
Cameroon (2006)	154	121.5	5
Madagascar (2005)	154.5	149.5	24.4
Mauritania (2006)	158	120.5	18.7
Mali (2003)	160	89	22
Senegal (2003)	160	161.5	17
Burkina Faso (2006)	163	151.5	12.7
Guinea (2006)	166.5	99	23.8
Burundi (2006)	174.5	109.5	17.1
DR Congo (2006)	178	172.5	12.5
Total	129.4	102.7	16.6

Countries are ranked according to Doing Business overall rank (higher values indicate lower ranking). Shaded countries belong to Anglophone group.
*: Average scores for available years.
Source: Enterprise Surveys, Doing Business

Table 7: Industry distribution by country (number of firms)

		Agro industry	Chemicals and related products	Materials for construction	Furniture	Metallic products	Industry of paper and paper products	Plastics products	Textiles and leather	Wood	Other	Total
Anglophone	Botswana (2006)	12	10	19	19	8	8	0	28	0	10	114
	Gambia (2006)	5	0	2	8	11	1	1	4	0	1	33
	Ghana2007	80	7	0	0	21	0	6	128	0	71	313
	Kenya (2003)	69	25	17	8	42	18	23	68	12	0	282
	Namibia (2006)	18	4	9	22	16	10	2	7	0	18	106
	Swaziland (2006)	15	5	8	4	2	10	2	21	0	3	70
	Tanzania (2003)	81	27	11	65	29	25	7	31	0	0	276
	Tanzania (2006)	70	15	9	60	27	16	6	56	0	14	273
	Uganda (2003)	122	18	40	47	21	23	7	15	7	0	300
	Uganda (2006)	92	8	10	93	53	22	0	17	0	12	307
	Total	564	119	125	326	230	133	54	375	19	129	2,074
Francophone	Benin (2004)	50	9	10	61	27	45	3	7	25	10	247
	Burkina Faso (2006)	14	1	1	0	3	12	2	4	7	7	51
	Burundi (2006)	23	14	2	22	6	8	1	26	0	0	102
	Cameroon (2006)	31	11	6	0	8	19	6	7	18	13	119
	Cape Verde (2006)	12	1	2	0	0	0	1	5	16	10	47
	DR Congo (2006)	59	16	3	24	10	4	2	22	0	9	149
	Guinea (2006)	27	3	0	29	18	0	0	41	0	17	135
	Madagascar (2005)	45	17	0	64	20	6	13	89	0	38	292
	Mali (2003)	51	16	19	13	22	11	7	10	5	0	154
	Mauritania (2006)	29	5	4	13	12	8	0	5	0	4	80
	Rwanda (2006)	21	7	2	7	4	9	1	7	0	1	59
	Senegal (2003)	93	34	19	6	25	36	15	23	10	1	262
	Total	455	134	68	239	155	158	51	246	81	110	1,697
	Total	1,019	253	193	565	385	291	105	621	100	239	3,771

Table 8: Selected firm characteristics

	Exporter (percent)	Privatized (percent)	Foreign owned (percent)	Part. foreign owned (percent)	Provides training (percent)	Workers reported for taxes (percent)
Anglophone	25	9	11	13	33	49.2
Francophone	25	3	19	24	29	66.9

Source: Enterprise Surveys

Table 9: Unionized workforce

		Unionized firms (percentage)*	Workforce unionized at the firm level (percentage)	Unionized workers (percentage)§
Anglophone	Botswana (2006)	18.1	11.7	5.0
	Gambia (2006)	17.6	9.1	17.0
	Ghana2007	50.4	24.4	42.0
	Kenya (2003)	63.6	44.1	25.0
	Namibia (2006)	50.5	36.2	29.0
	Swaziland (2006)	37.2	21.8	33.0
	Tanzania (2003)	51.6	40.1	38.0
	Tanzania (2006)	46.7	34.8	34.0
	Uganda (2003)	10.1	6.5	5.0
	Uganda (2006)	8.3	2.6	4.0
	Male			22.0
	Female			27.0
	Total	42.8	24.1	23.0
Francophone	Benin (2004)	6.5	3.6	4.0
	Burkina Faso (2006)	35.3	27.2	16.0
	Burundi (2006)	1.3	1.3	3.0
	Cameroon (2006)	31.1	17.9	34.0
	Cape Verde (2006)	46.8	31.2	30.0
	DR Congo (2006)	23.9	15.1	30.0
	Guinea (2006)	8.8	3.8	15.0
	Madagascar (2005)	27.5	10.0	11.0
	Mali (2003)	43.7	29.6	29.0
	Mauritania (2006)	42.8	27.8	24.0
	Rwanda (2006)	12.0	8.8	10.0
	Senegal (2003)	46.5	30.3	27.0
	Male			19.0
	Female			15.0
	Total	24.5	14.8	18.0

*: A firm is unionized if it has any number of unionized workers. Over half of the firms have no unionized workers at all.

§: In the workers' sample.

Source: Enterprise Surveys

Table 10: Unionization rate by firm age (percentage)

	Anglophone	Francophone
Less than 5 years old	10.5	6.7
5 to 9 years old	22.3	8.5
10 to 19 years old	21.6	17.1
20 to 39 years old	31.6	25.2
40 years old and older	44.4	36.2
Total	24.0	14.8

Source: Enterprise Surveys

Table 11: Potential employment in the absence of legal restrictions

		Average difference between potential and actual employment (% of workers)	Firms that desire to increase employment (% of firms)	For potentially expanding: average increase in employment (% of current employment)	For potentially contracting: average reduction in employment (% of current employment)
Anglophone	Botswana (2006)	3.2	6.9	35.3	-0.8
	Gambia (2006)	0.5	6.4	7.2	-0.0
	Ghana2007				
	Kenya (2003)	101.0	33.2	239.0	-32.5
	Namibia (2006)	0.9	3.9	8.5	-0.6
	Swaziland (2006)	19.3	5.8	328.3	-0.4
	Tanzania (2003)	10.3	24.9	29.0	-4.1
	Tanzania (2006)	0.6	0.4	10.8	-0.5
	Uganda (2003)	51.1	28.3	105.3	-29.7
	Uganda (2006)	0.2	0.4	42.9	-0.0
	Total	10.3	6.1	119.2	-3.2
Francophone	Benin (2004)	30.0	41.7	62.6	-6.8
	Burkina Faso (2006)	2.6	3.9	57.3	-0.4
	Burundi (2006)	2.0	3.0	55.7	-0.3
	Cameroon (2006)	0.8	5.0	6.9	-0.5
	Cape Verde (2006)	1.2	4.3	28.7	-0.0
	DR Congo (2006)	1.2	4.3	25.5	-0.1
	Guinea (2006)	0.4	0.7	10.0	-0.3
	Madagascar (2005)	14.8	21.0	37.7	-8.7
	Mali (2003)	41.4	26.8	80.9	-26.9
	Mauritania (2006)	3.0	8.9	32.6	-0.1
	Rwanda (2006)	0.1	0.0		-0.1
	Senegal (2003)	47.0	25.3	100.6	-28.9
	Total	13.4	12.8	63.1	-6.1

Note: These numbers are calculated on the basis of the response to the following question: "in the absence of restrictions to hiring and firing workers, how many workers would you currently employ? (Answer expressed as a percentage of current employment)" The first column is the absolute value of the response minus 100. The second column counts the number of firms that would increase employment in the absence of restrictions. The third column is the average increase in employment only for firms that would like to expand. The last column is the average decrease in employment only for those firms that would like to contract.

Table 12: Correlations between employment growth and regulation

	DB overall	DB labor
DB overall	1.00	
DB labor	0.57*	1.00
Labor regulations obstacle (perception)	-0.11	0.26
Employment growth	-0.04	-0.17
Firms with positive employment growth (%)	0.03	-0.15
Average difference between potential and actual employment	-0.20	-0.17
For potentially contracting: average reduction in employment potential	-0.06	-0.13

Note: * denotes significance at the 5% level or better. Correlations between DB scores and other variables are calculated from country-level averages.

Table 13: Determinants of employment growth

		Dependent variable:			
		Annual employment growth		Long run employment growth	
Initial size	Small [6-10]	-0.102***	-0.102***	-3.919***	-4.537***
		[3.93]	[3.92]	[4.96]	[5.61]
	Small-medium [11-20]	-0.102***	-0.101***	-4.334***	-5.640***
		[3.59]	[3.57]	[4.98]	[5.47]
	Medium [21-50]	-0.110***	-0.112***	-5.735***	-8.150***
		[4.23]	[4.15]	[6.66]	[6.92]
	Medium-large [51-100]	-0.126***	-0.137***	-6.984***	-10.451***
		[4.39]	[4.46]	[6.13]	[6.57]
	Large [100+]	-0.147***	-0.173***	-7.930***	-12.931***
		[4.78]	[4.82]	[7.63]	[7.41]
Firm age	[5-9] years old	-0.101**	-0.098**	1.813***	1.126*
		[2.33]	[2.49]	[2.73]	[1.96]
	[10-19] years old	-0.144***	-0.141***	1.733***	0.974**
		[3.21]	[3.41]	[3.91]	[2.45]
	[20-39] years old	-0.231***	-0.230***	2.975***	2.085***
		[5.36]	[5.68]	[4.36]	[3.51]
	40 and older	-0.270***	-0.271***	3.606**	1.743
		[5.88]	[6.14]	[2.36]	[1.32]
	Civil-law system	-0.09	0.02	-2.535***	-1.220**
	(Franco/Lusophone)	[1.04]	[0.48]	[4.66]	[2.09]
Other firm characteristics	Exporter		0.053*		3.722***
			[1.75]		[4.27]
	Has access to credit		0.017		1.603**
			[0.59]		[2.35]
	Uses e-mail for business		0.041*		1.936***
			[1.94]		[4.44]
	Owns a generator		0.046**		2.998***
			[2.21]		[6.78]
	Sole proprietorship		0.131***		-1.426***
			[4.83]		[4.56]
	Provides training to workers		0.023		1.833***
			[1.21]		[3.35]
	Constant	0.487***	0.259***	6.667***	4.051***
		[5.10]	[5.02]	[6.36]	[5.15]
	Observations	3043	2931	3428	3286
	R-squared	0.06	0.08	0.09	0.14

Notes: Robust t-statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. Annual employment growth is calculated as the annualized growth rate of employment between last fiscal year and 3 fiscal years back. Long term growth is the growth rate between initial employment and employment in the last fiscal year. Countries are weighted by their GDP. Country and industry dummies included in all regressions. Omitted categories are micro (less than 5 employees) and very young firms (less than 5 years old).

Table 14: Determinants of employment growth with country-specific controls

		Dependent variable:					
		Annual employment growth			Long run employment growth		
Initial size	Small [6-10]	-0.106***	-0.106***	-0.105***	-4.408***	-4.452***	-4.418***
		[4.09]	[4.12]	[4.07]	[5.89]	[5.97]	[5.94]
	Small-medium [11-20]	-0.101***	-0.103***	-0.102***	-5.611***	-5.642***	-5.600***
		[3.49]	[3.58]	[3.52]	[5.88]	[5.86]	[5.84]
	Medium [21-50]	-0.112***	-0.115***	-0.114***	-8.055***	-8.074***	-8.024***
		[4.16]	[4.28]	[4.24]	[7.63]	[7.50]	[7.49]
	Medium-large [51-100]	-0.141***	-0.144***	-0.142***	-10.395***	-10.433***	-10.370***
		[4.53]	[4.68]	[4.61]	[7.18]	[7.12]	[7.11]
	Large [100+]	-0.164***	-0.171***	-0.168***	-13.026***	-13.081***	-12.973***
		[4.43]	[4.61]	[4.55]	[8.24]	[8.08]	[8.06]
Firm age	[5-9] years old	-0.103**	-0.102**	-0.105***	1.171*	1.115*	1.162*
		[2.52]	[2.52]	[2.60]	[1.96]	[1.85]	[1.93]
	[10-19] years old	-0.141***	-0.141***	-0.146***	0.928**	1.001**	0.946**
		[3.33]	[3.33]	[3.47]	[2.31]	[2.48]	[2.35]
	[20-39] years old	-0.235***	-0.234***	-0.244***	2.281***	2.590***	2.330***
		[5.80]	[5.82]	[5.99]	[3.77]	[4.16]	[3.85]
	40 and older	-0.276***	-0.271***	-0.283***	2.102	2.484*	2.138
		[6.42]	[6.38]	[6.56]	[1.59]	[1.86]	[1.62]
Other firm characteristics	Exporter	0.055*	0.056*	0.056*	3.842***	3.872***	3.821***
		[1.82]	[1.86]	[1.86]	[4.92]	[4.87]	[4.82]
	Has access to credit	0.014	0.016	0.014	1.796***	1.970***	1.805***
		[0.50]	[0.58]	[0.50]	[3.06]	[3.36]	[3.09]
	Uses e-mail for business	0.048**	0.051**	0.045**	2.051***	2.339***	2.083***
		[2.21]	[2.35]	[2.04]	[4.57]	[5.25]	[4.75]
	Owns a generator	0.029	0.023	0.028	3.082***	2.883***	3.097***
		[1.41]	[1.10]	[1.37]	[6.30]	[6.29]	[6.39]
	Sole proprietorship	0.148***	0.138***	0.139***	-2.059***	-2.005***	-1.957***
		[5.39]	[5.14]	[5.15]	[6.44]	[5.64]	[5.49]
	Provides training to workers	0.026	0.026	0.025	1.930***	1.977***	1.939***
		[1.38]	[1.41]	[1.32]	[3.42]	[3.52]	[3.46]
Country-level controls	GDP growth (annual)	0.006	0.006	0.007*			
		[1.54]	[1.58]	[1.80]			
	GDP growth (1996-2005)				-0.645***	-0.559***	-0.678***
					[4.04]	[3.54]	[3.83]
	Overall DB	-0.069		-0.132*	-5.711***		-5.016***
		[1.17]		[1.83]	[3.58]		[3.41]
	Labor DB		0.031	0.067**		-2.028**	-0.883
			[1.17]	[2.02]		[2.02]	[0.90]
	Constant	0.295***	0.235***	0.310***	11.479***	7.940***	11.513***
		[5.08]	[4.92]	[5.14]	[6.57]	[7.68]	[6.55]
	Observations	2931	2931	2931	3286	3286	3286
	R-squared	0.07	0.07	0.07	0.13	0.13	0.13

Notes: Robust t-statistics in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%. Annual employment growth is calculated as the annualized growth rate of employment between last fiscal year and 3 fiscal years back. Long term growth is the growth rate between initial employment and employment in the last fiscal year. Countries are weighted by their GDP. Industry dummies included in all regressions. Omitted categories are micro (less than 5 employees) and very young firms (less than 5 years old). Long term growth is the country-specific trend estimate from annual growth rates between 1996 and 2006.